

**SMITH & NEPHEW NORTH AMERICA  
PATENT APPLICATION DISCLOSURE FORM  
Record of Invention**

**Title:** Acetabular Liner Variable Angle Chamfer

**Inventor:** Brian McKinnon **Citizenship:** USA

**Home Address:** 3290 Broadway St. **Phone:** 901-384-8274

**Bartlett** **Street**  
**City** **TN** **38133**  
**State** **Zip**

**Social Security No.** \_\_\_\_\_

**Inventor:** \_\_\_\_\_ **Citizenship** \_\_\_\_\_

**Home Address** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Street**

**Social Security No.** \_\_\_\_\_

**City** **State** **Zip**

**Inventor:** \_\_\_\_\_ **Citizenship:** \_\_\_\_\_

**Home Address:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Street**

**Social Security No.** \_\_\_\_\_

**City** **State** **Zip**

**Date the idea first came to mind:** \_\_\_\_\_

**With whom was the idea first discussed:** David Kelman, Jeff Shea, Rick Lambert

**Date on which the idea was  
reduce to writing in whole or in part:** \_\_\_\_\_

**Date first construction of the idea  
started:** \_\_\_\_\_

**Date first construction of the idea  
completed:** \_\_\_\_\_

**Has the invention been disclosed in a printed publication or a talk?** Yes No

**(If yes, date of publication or talk:** \_\_\_\_\_ **)**

Brian McKinnon 2-1-00  
**Signature of Inventor** **Date**

\_\_\_\_\_  
**Signature of Inventor** **Date**

\_\_\_\_\_  
**Signature of Inventor** **Date**

\_\_\_\_\_  
**Signature of Inventor** **Date**

**ATTACHED TO THE RECORD OF INVENTION SHOULD BE A COMPLETE DISCLOSURE OF THE INVENTION. A NARRATIVE CONTAINING THE INFORMATION DESCRIBED BELOW SHOULD ENABLE A COMPLETE REVIEW OF THE INVENTION.**

**Describe the problem to be solved.** This may be represented by a quest for a new material or process, or an attempt to improve a current material, process or machine. The situation may be represented by a long-standing problem in a specific area, or may be a problem that presented itself recently when a new situation was encountered.

**Outline what was done in the past.** In providing this background, the inventor is to describe the inadequacies or shortcomings of past practices, materials or apparatus. Again, this may be a long-standing shortcoming in the prior art or you need for a better performing material or apparatus when faced with a new situation (provide copies or a listing of any known relevant patents, literature, journal articles, etc., which show background solutions).

**Describe the idea in its broadest sense.** This would be a description of what is being accomplished and the general means by which the idea is implemented. In this portion describe generally those parts of the invention where the specific details are not crucial to the inventive concept. The invention may include more than one category of apparatus, process and material.

**Describe a specific embodiment for the invention.** If possible, provide a precise description of how the apparatus would be constructed, the product made or the process executed. It is necessary to describe in sufficient detail at least one embodiment of the invention that would work. If the invention lends itself to a drawing, one of more figures should be provided. It is helpful if these figures contain numerical identification of different elements that may be referred to in the text so that the reader can follow along.

**Describe likely alternate embodiments of the invention.** To identify alternate embodiments consider what our competitors will do in response to introduction of our invention, especially how they might modify it to avoid the patent claims. Also consider whether the invention (or a variation thereof) would be applicable in a related or different field. The goal is to describe a range of embodiments so the breadth of the patent coverage can be maximized.

**Compare the advantages of the invention with the prior art.** That is necessary not only in preparing a patent application but also to allow the IP Review Team to make an informed decision on whether to seek patent protection for the invention. The advantage of the invention may be characterized not only in terms of enhanced performance, but also in terms of reduced costs, enhanced safety or avoiding the patent of another.

## INVENTION DISCLOSURE OUTLINE

**1. Describe the problem to be solved:**

Increase range of motion of hip prosthesis.

**2. Outline past solutions (attach copies or a listing of any know relevant patents, literature, journal articles, etc., which show background solutions):**

Use of a constant angle chamfer around the liner I.D.

**3. Describe the idea broadly:**

A variable angle chamfer is employed around the circumference of an acetabular liner I.D. that allows for delayed impingement with a hip stem resulting in increased range of motion.

**4. Describe a specific embodiment of the invention (attach drawings if descriptive):**

See attached rendering: Chamfer geometry around the circumference of the liner shown varies in angle relative to the plane of the I.D. such that the angles  $\alpha \neq \beta \neq \theta$

**5. Describe alternate embodiments (consider competitive response and other fields of application):**

-Use in constrained anteverted liner, and lipped liner.

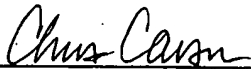
-Competitors could possibly divide the chamfered area of the liner into several constant angle sections so as to approximate a single varying angle chamfer.

-Other field applications: Ball joints for machinery, articulating joint stops.

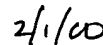
**6. Compare the invention to the prior art (features and benefits):**

Allows for delayed impingement between liner chamfer and neck of stem thus giving increased range of motion compared to what is possible with the prior art of a constant angle chamfer.

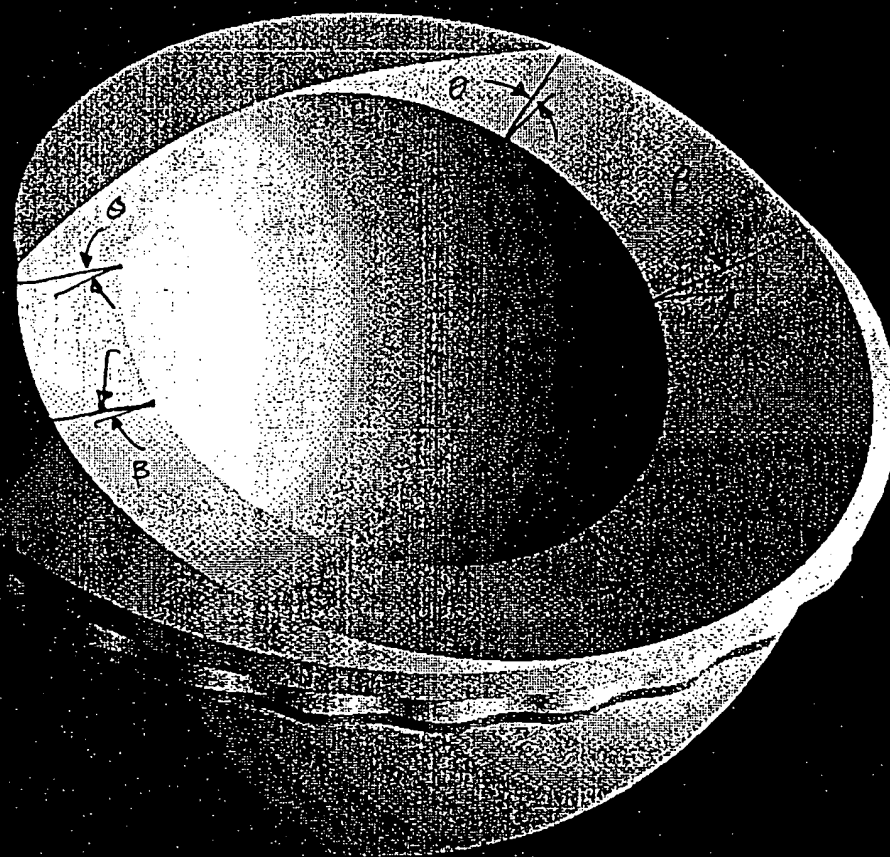
**The undersigned hereby states he/she has read and understood the attached disclosure:**



\_\_\_\_\_  
Signature (Not a party to the invention)



\_\_\_\_\_  
Date



VARIABLE ANGLE CHAMFER  
B. MCKINNON

BEST AVAILABLE COPY